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Personality traits and performance enhancing drugs: The Dark Triad and doping attitudes among competitive athletes

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Abstract

The use of performance enhancing drugs, also known as doping, can represent a serious threat to an athlete's psychological and physical health and contravenes the spirit of sport. Scholars identified attitudes towards doping as a crucial factor that indirectly influences doping behaviors. Further, prominent theoretical frameworks that are designed to explain why athletes dope state that personality traits shape doping attitudes. To date, however, scholars are yet to examine the relationship between attitudes towards doping and personality traits such as the Dark Triad. The purpose of this study was to explore the relationship between the Dark Triad and doping attitudes amongst a sample of competitive athletes. Two hundred and eighty-five athletes completed a measure of the Dark Triad and attitudes towards doping. Machiavellianism, psychopathy, and narcissism all correlated positively with attitudes towards doping. Machiavellianism and psychopathy explained 29% of the variance in attitudes towards doping, whereas narcissism did not independently contribute to the variance in doping attitudes. These results reveal that athletes who score highly on the Dark Triad may be more likely to dope and therefore might need targeted anti-doping education and long-term monitoring to reduce their risk of taking banned substances.

Keywords. Machiavellianism; Performance Enhancing Drugs; Psychopathy; Narcissism

1. Introduction

A doping violation occurs when an athlete takes a substance (e.g., Anabolic Androgenic Steroids (AAS), diuretics, or amphetamines) or uses a method (e.g., blood doping or gene therapy), which is prohibited by the World Anti-Doping Agency (WADA, 2015). The White Paper on Sport (2007) revealed that doping represents a significant threat to sport across all levels, because it undermines open and fair competition. Given the abundance of high-profile doping cases in the media, many people may falsely believe that doping occurs exclusively among elite athletes. There is evidence that grassroots (e.g., ESPAD, 2011) and adolescent athletes (e.g., Gradidge, Coopoo, & Constantinou, 2010) take Performance Enhancing Drugs (PEDs) too. This is extremely concerning due to the side effects of PEDs.

Doping poses a serious threat to the lives of athletes who take PEDs. Indeed, PEDs can cause severe physical (e.g., Johnson, 2012) and mental health illnesses (e.g., Lindqvist, Moberg, Ehrnborg, Eriksson, Fahlke, & Rosén, 2013), due to the large quantities in which PEDs are consumed to gain a performance enhancing effect (Bird, Goebel, Burke, & Greaves, 2016). For example, AAS, which accounts for 43% of doping offences in grassroots sport (Brennan, Kanayama, Hudson, & Pope, 2011), is associated with damage to the liver, heart, kidneys, and reproductive systems. Worryingly, these illnesses may be irreversible and can ultimately lead to premature death (Bird et al., 2016). In regards to mental health, there is a two-to-four fold increased risk of suicide among athletes that have previously taken PEDs (Lindqvist et al., 2014). Despite PEDs representing a serious health threat, it appears that many athletes are unaware of the dangers that banned substances pose to their health (Nicholls et al., 2015). Understanding why athletes dope, and being able to better identify those who are more susceptible to doping, will enable governing bodies to expose at risk athletes to more intensive anti-doping education and long-term monitoring.

A factor that influences whether an athlete will comply with anti-doping rules is his or her attitude towards PEDs. A meta-analysis by Ntoumanis, Ng, Barkoukis, and Backhouse (2014) revealed that a positive or favorable attitude to doping was one of the strongest predictors of doping behaviors. Understanding more about the factors that shape attitudes, such as different personality traits (Donovan, Egger, Kapernick, & Mendoza, 2002), will enable governing bodies to identify at risk athletes. Indeed, Donovan et al.'s (2002) Sport Drug Control Model (SDCM) is a theoretical framework that was created to shed light on why some athletes take PEDs and identified attitudes as being influential in this decision. The SDCM (Donovan et al., 2002), which includes social cognitions, threat appeals, and instrumental and normative approaches, identified six factors that shape whether an athlete will have a favorable or unfavorable attitude towards PEDs, which in turn influences whether an athlete will take PEDs or not. The six constructs were threat appraisals (i.e., the deterrents associated with taking PEDs such as ill health or being caught and the implication that follow), benefit appraisals (i.e., how one may benefit from enhanced performance, such as being awarded a new contract, higher sponsorship, or more prize money), morality (i.e., whether an athlete thinks doping is right or wrong), legitimacy (i.e., the level of authority from organizations that conduct drug tests), reference group opinion (i.e., how significant others in an athlete's life may view the use of PEDs), and personality traits such as optimism or self-esteem. These six factors may influence intentions to dope, which in turn would affect doping behavior.

Scholars such as Gucciardi, Jalleh, and Donovan, (2011) and Jalleh, Donovan, and Jobling (2014) quantitatively examined the SDCM (Donovan et al., 2002). Gucciardi et al. (2011) found that the strongest predictors of doping attitudes were morality (cheating), benefit appraisals, and threat appraisals. The other factors, self-esteem, legitimacy, and reference group opinion were not associated with doping attitudes. Jalleh et al. (2014)

reported that legitimacy, reference group opinion, and morality were the only constructs related to doping attitudes. Neither of these studies found that personality constructs, such as self-esteem, was associated with doping attitudes. Despite personality being a key construct within the SDCM (Donovan et al., 2002), researchers are yet to demonstrate the predictive power of personality in relation to doping. This could be due to scholars not assessing the most relevant personality traits (e.g., self-esteem). A cluster of personality traits that might be the most relevant towards doping attitudes is the Dark Triad (Paulhus & Williams, 2002).

1.1. The Dark Triad

The Dark Triad (Paulhus & Williams, 2002) contains three related, but distinct personality traits (Azizli et al., 2016). These are Machiavellianism, narcissism, and psychopathy. An individual who scores highly on Machiavellianism manipulates other people, thinks only of him or herself, is deceitful (Hern, Vujaklija, Ivanisevic, Knezevic, Marusic, & Marusic, 2006), and is highly strategic (Jones & Paulhus, 2014). Narcissistic people have an over inflated view of themselves, are vain, and have a strong sense of self-entitlement (Raskin & Hall, 1979). Finally, psychopathic individuals are impulsive, have little or no empathy for others, tolerate danger well, and can be highly aggressive (Barlett, 2016). These three personality traits overlap and have a number of behavioral implications. The Dark Triad is linked to unethical behavior (e.g., Roeser, McGregor, Stegmaier, Matthew, Kübler, & Meule, 2016), risk taking (Malesza & Ostaszewski, 2016), and identifying individuals who are susceptible to manipulation (Chung & Charles, 2016).

At the present time, however, little is known about whether these traits are associated with attitudes towards doping. Even though scholars are yet to explore the relationship between attitudes towards doping and the Dark Triad, these two constructs may be related. Egan, Hughes, and Palmer (2015) reported a positive association between the Dark Triad and moral disengagement. Hodge, Hargreaves, Gerrard, and Lonsdale (2013) reported that moral

disengagement was positively associated with favorable attitudes towards doping. Furthermore, other research revealed that the Dark Triad was negatively associated with honesty (e.g., Djeriouat &Trémolière, 2014), but positively associated with cheating (Baughman et al., 2014; Lyons & Brockman, 2017), risk taking (Crysel et al., 2013), and being pre-occupied with the present, and thus discounting future consequences (Birkás & Csathó, 2015). Finally, Azizli et al. (2016) reported a positive association between Machiavellianism, psychopathy, and narcissism and soft drug abuse. Given that doping represents cheating, is a form of substance abuse, may involve discounting future consequences (e.g., health problems or a positive test), and represents dishonest behavior, it is entirely plausible that attitudes towards doping will be associated with the Dark Triad of personality.

In this paper we examined the relationship between attitudes towards doping and the Dark Triad. We hypothesized that Machiavellianism, narcissism, and psychopathy would correlate positively with attitudes towards doping, based on the notion that the Dark Triad is associated with cheating, risk taking, moral disengagement, and dishonesty (Djeriouat &Trémolière, 2014; Egan et al., 2015; Malesza & Ostaszewski, 2016). Understanding more about the relationship between the Dark Triad and attitudes towards doping will enhance our ability to apportion variance to personality traits. This may have a significant impact on how at-risk athletes are identified and are supported by sports governing bodies.

2. Method

2.1 Participants

Two hundred and eighty-five athletes (male n = 217, female n = 68), aged between 18 and 30 years of age (M age = 20.82, SD = 2.59), with a mean playing experience of 9.48 years (SD = 4.33) and a mean of 4.45 hours per week training (SD = 2.65), who resided in the

United Kingdom participated in the study. Participants competed as amateur (n = 203), semi-professional (n = 45), or professional (n = 37) athletes.

2.2 Measures

Doping Attitudes. The 8-item version of the Performance Enhancement Attitude Scale (PEAS; Nicholls, Madigan, & Levy, 2017) assessed the doping attitudes. Due to a poor model fit of the original 17-item PEAS (Petróczi & Aidman, 2009), Nicholls deleted nine items, which resulted in a superior fit. The 8-item PEAS (Nicholls et al., 2017) included questions such as "doping is unavoidable part of the competitive sport," "doping is necessary to be competitive," and "doping is not cheating since everyone does it." All questions were answered on a 6-point Likert-type scale, which was anchored at 1 = *'strongly disagree'* and 6 = *strongly agree.'* Scholars (e.g., Nicholls et al., 2017; Vargo et al., 2014) demonstrated that the 8-item version of the PEAS is a reliable measure.

Dark Triad. The Short Dark Triad (SD3; Jones & Paulhus, 2014) is a 27-item questionnaire that measures Machiavellianism (e.g., "It's not wise to tell your secrets" and "whatever it takes, you must get the important people on your side"), narcissism (e.g., "many group activities tend to be dull without me" and "I insist on getting the respect I deserve"), and psychopathy ("payback needs to be quick and nasty" and "I'll say anything to get what I want"). All questions were answered on a 5-point Likert-type scale, which was anchored at 1 = *'not at all'* and 5 = *'extremely.'* Jones and Paulhus (2014) reported acceptable reliabilities for Machiavellianism (α = .71), narcissism α = .74), and psychopathy (α = .77).

2.2 Procedure

Following ethical approval from a departmental university Ethics Committee, we distributed information letters and consent forms to different sports clubs. Athletes who wished to participate in the study signed and returned the consent form to a trained research

assistant. After completing the consent form, participants completed a questionnaire booklet that included demographic questions, the SD3 (Jones & Paulhus, 2014) and the 8-item PEAS (Nicholls et al., 2017). The questionnaires were completed in the presence of a trained research assistant, who was able to answer any questions.

2.3 Data Screening

Firstly, we inspected the data for missing values and there were no missing values. We then computed Cronbach's alphas for the variables. All alphas were acceptable (see Table 1), except for narcissism which was not acceptable (.46). Based on the recommendations of DiStefano and Motl (2006) and De Cuyper, Claes, Hermans, Pieters, and Smits (2015) we deleted the three reverse scored items (e.g., 11, 15, and 17). This resulted in an acceptable alpha (.63). Finally, we screened data for multivariate outliers (Tabachnick & Fidell, 2007). No participant showed a Mahalanobis distance larger than the critical value of $\chi^2(4) = 18.47$, $P < .001$, therefore, all data were retained for further analyses.

3. Results

3.1 Bivariate Correlations

The bivariate correlations between all variables are presented in Table 1. In accordance with previous research (e.g., Jones & Paulhus, 2014), the Dark Triad dimensions showed strong inter-correlations. Moreover, all the Dark Triad dimensions showed significant positive correlations with attitudes towards doping.

3.2 Multiple Regression Analyses

We then conducted a multiple regression analysis (see Table 2). This analysis controlled for the overlap between the Dark Triad dimensions and investigated the dimensions' unique relationships with attitudes towards doping. All three Dark Triad dimensions were entered simultaneously into the regression analysis. Results showed that the

model explained 29% of the variance in attitudes towards doping (R^2 = .290, P < .001). Machiavellianism and psychopathy positively predicted attitudes towards doping, whereas narcissism did not.

4. Discussion

The purpose of this study was to examine the association between the Dark Triad and attitudes towards doping. In support of our hypotheses, all three traits (e.g., Machiavellianism, narcissism, and psychopathy) correlated positively with doping attitudes. Further, Machiavellianism and psychopathy explained 29% of the variance in doping attitudes, whereas narcissism did not independently contribute to the variance in doping attitudes. It is plausible that narcissism is less important than Machiavellianism and psychopathy as a driver of doping attitudes. This might be because a key attribute of psychopathy is reckless behaviour (Jones & Paulhus, 2011), and taking a PED is a form of reckless behaviour. Further, those who score highly on Machiavellianism are likely to possess a strategic orientation (Jones & Paulhus) and thus could plan how they may achieve their sporting ambitions (e.g., professional contract, beating personal best, or recover from injury quicker) by using PEDs. Further research is required, however, to identify whether narcissism is an important ingredient in doping attitudes.

From a theoretical point of view, this is one of the first studies to show a relationship between personality and attitudes towards doping. Even though theoretical models such as the SDCM (Donovan et al., 2002) and the Sport Drug Control Model for Adolescent Athletes (SDCM-AA; Nicholls et al., 2015) purported that personality traits influence doping attitudes, quantitative research failed to provide direct evidence for this assertion (e.g., Gucciardi et al., 2011; Jalleh, 2014). Although self-esteem may not be associated with doping attitudes, the present study indicates that the Dark Triad is associated with an athlete's evaluation of PEDs. Therefore, the SDCM and the SDCM-AA could be refined to take into account the findings

from this study, by including the Dark Triad as a factor that may shape attitudes towards doping. Future research could also identify other personality traits that might be associated with doping attitudes, such as the Big 5 (McRae & Costa, 2003) or perfectionism (e.g., Madigan, Stoeber, & Passfield, 2016). Indeed, the research by Madigan et al. (2016) revealed that doping attitudes were associated perfectionism among adolescent athletes. Madigan et al., however, used the PEAS (Petróczi & Aidman, 2009), which demonstrated a poor model fit in subsequent research among adolescent athletes (e.g., Nicholls et al., 2017), so their findings are questionable. Additional research is therefore required to confirm this relationship with adolescent and adult athletes. This would allow for additional refinement of existing doping theoretical frameworks and provide an interesting stimulus for new programs of research.

4.1 Limitations and future directions

A potential limitation of this study and other Dark Triad research in general, relates to whether Machiavellianism, psychopathy, and narcissism are sufficiently different from one another. A recent meta-analysis by Vize, Lynam, Collison, and Miller (2016) explored intercorrelations, similarities in the nomological networks of these components, and effect sizes in relation to different outcomes. Vize et al. (2016) reported that Machiavellianism and psychopathy overlapped one another, and suggested that Machiavellianism should be considered as a secondary psychopathy. Jones and Paulhus (2014), however, suggested that a key component of Machiavellianism (e.g., a strategic calculating orientation) is often not explored by researchers. Many of the studies in Vize's meta-analysis may not have accurately explored Machiavellianism. Despite us reporting a relatively high correlation between Machiavellianism and psychopathy, Jones and Paulhus provided a clear distinction between the personality traits within the Dark Triad. One could therefore argue that Machiavellianism should not be labeled as secondary psychopathy. Another potential limitation of this study is that the athletes self-reported their doping attitudes, so may not have provided honest answers.

In order to reduce the likelihood of this occurring, all questionnaires were completed anonymously so the athletes knew their responses could not be attributed to them. It is noteworthy that the reliability score for narcissism was below the standard recommendation. However, in personality research this is not uncommon (McCrae, 2015) and Cronbach and Shavelson (2004) urged caution against the arbitrary oversimplification of the .70 alpha cut-off value.

Although not previously considered as being a dark behavior (Roeser et al., 2016), taking PEDs is a form of misconduct (Azizli et al., 2016). Athletes who dope, violate anti-doping rules and are thus cheating. We did not assess current or previous doping behavior in this study; we assessed doping attitudes which indirectly predict doping behavior (e.g., Ntoumanis et al., 2014). We decided to assess attitudes toward doping rather than current or previous use of PEDs, because only around 10-15% of elite and sub-elite athletes reported doping (Laure, 1997), but many more athletes may hold positive views about PEDs. As such, these athletes may take PEDs in the future. Identifying athletes with favorable attitudes towards doping is just as important as finding out who is doping or has doped in the past.

Finally, scholars could also explore how the Dark Triad is associated with other psychological constructs (e.g., moral disengagement, doping susceptibility, and intentions) and behaviors such as taking nutritional supplements (Backhouse, Whitaker, & Petróczi, 2013) or alcohol intoxication (Wichstrøm, 2006) among athletes, as these are associated with doping attitudes or behaviors. Revealing the relationship between the Dark Triad and these constructs would shed light on the extent to which this personality cluster is a driver of doping attitudes and doping behaviors.

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Table 1

Descriptive Statistics, Cronbach's Alphas, and Bivariate Correlations

Variable	1	2	3	4
1. Machiavellianism				
2. Narcissism	.50***			
3. Psychopathy	.56***	.53***		
4. Attitudes towards doping	.49***	.29***	.46***	
M	25.47	15.69	20.36	18.99
SD	5.94	4.22	6.55	9.01
Cronbach's alpha	.75	.63	.78	.88

Note. $N = 285$.

***$p < .001$.

Table 2

Summary of Multiple Regression Analysis

	R^2	β
DV = Attitudes towards doping	.290***	
Machiavellianism		.34***
Narcissism		–.03
Psychopathy		.29***

Note. N = 285. DV = dependent variable. β = standardised regression weight.

***p < .001.